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ABSTRACT

The presentation summarizes data from a 5-year longitudinal study involving 108 special needs students who were part of a cooperative vocational exploration and training program for the handicapped. The program, designed to overcome obstacles in rural areas, moved from a centralized to decentralized model of vocational service delivery that featured such aspects as a prioritized sequence of desired employee skills and behaviors, a series of 14 vocational curriculum teaching modules, and a resource teacher training plan. Descriptive statistics are presented summarizing the major student characteristics, school variables, and community-county characteristics. Significant predictor variables were identified. Three major conclusions were drawn: (1) verified handicap, gender, full scale IQ, family involvement, and absence were among major client characteristics predictive of outcomes; (2) major school variables predictive of outcomes included school enrollment, semester hours in vocational programs, and total years of teaching by the resource teacher; (3) major county community characteristics predictive of outcome included per capita income, number of businesses, and labor force. (CL)

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POST-SECONDARY COMMUNITY PLACEMENT OF MENTALLY RETARDED INDIVIDUALS: A FIVE-YEAR FOLLOW-UP ANALYSIS

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The demand for accountability and outcome evaluation of special educational services has grown steadily during the last few years (Schalock, 1983; Voeltz & Evans, 1983). Many educators, however, are not generally enthusiastic about evaluation, since many perceive it as an externally imposed requirement for which there is neither adequate preparation nor sufficient funding, while others feel that evaluation methods are insensitive to their program's complexities or student characteristics. Many schools, in addition, have only one special education program, do not consider themselves as part of the "larger community", and thereby typically use their own approaches to assessment, training, and program evaluation.

This demand for accountability is one of a number of current trends directly affecting the provision of services to special needs students. A second trend relates to our appreciation of the significant effects that environments have on behavior. This ecological, or person-environment perspective, incorporates one or more of the following premises: (a) individuals cannot be separated from their living-working environments (Stuckey & Newbrough, 1981; Wicker, 1979); (b) both persons and their environments can be assessed (Dokecki, 1977; Karan & Schalock, 1983; McLain, Silverstein, Brownlee & Hubbell, 1979); (c) the mismatch between persons

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and their environment can be reduced through the development of behavioral skills, use of prosthetics or environmental modification (Schalock, 1983; Weisgerber, Dahl & Appleby, 1980); (d) intervention should focus on caregivers and settings as much as on the handicapped person (Berkson & Romer, 1981; Karan, 1982; Landesman-Dwyer, 1981; Seltzer, 1981; Willer & Intagliata, 1981); and (e) assessment and training activities should have both ecological and social validity (Brooks & Baumeister, 1977; Kazdin & Matson, 1981).

Consistent with the ecological perspective is a third trend affecting special education services. This trend relates to social validation that has recently been proposed as a method to identify training areas within special education based upon societal input (Kazdin & Matson, 1981). One aspect of social validation is descriptive validation assessment in which the required skills of the placement environment are determined either through observation, survey or verbal input (Rusch, Schutz & Agran, 1982). Once those required, or criterion environment (Brown et al., 1981) skills are delineated, then behavioral skill training is best conducted within that natural environment (Brown, Nietupski, & Hamre-Nietupski, 1976; Freagan & Rotatori, 1982; Martin, Rush & Heal, 1982; Schalock, Gadwood & Brown, 1984; Wehman & Hill, 1982). Training in the natural environment will maximize both skill acquisition and maintenance since stimulus control and response generalization are more likely when the stimuli controlling behavior in a training situation also are present in the transfer setting (Horner, 1981; Rincover & Koegel, 1975; Stokes & Baer, 1977).

The purpose of today's presentation is to summarize data from a 5-year longitudinal study involving 108 special need students who were part of a cooperative vocational exploration and training program for the handi-

capped. The original stimulus for the program was a three year Handicapped Children's Model Program Grant awarded to Education Service Unit #9 by the Office of Special Education. The program was developed and evaluated within the context of the three trends discussed above, namely the need for program accountability, outcome measures, and ecological-social validity.

The service delivery model developed was based on the concept of cooperative efforts by the local school districts, ESU #9 (an intermediary agency), and local business and industry. The rationale for the program model was based on the recognition of service delivery barriers present in rural Nebraska, that had previously discouraged the development of comprehensive vocational services for secondary handicapped students. These barriers include an uneven distribution of the special education populations over a large geographical area, numerous small independent school districts unable to provide comprehensive vocational services, a lack of business and industry, and traditionally orientated board policies that place an emphasis upon academic achievement rather than vocational competence.

The Cooperative Vocational Program was designed to serve an already identified handicapped population of 228 secondary level students from approximately 18 school districts. Eligible program participants were 16 years or older, had been verified as specific learning disability, mentally retarded, or educable mentally retarded, and were enrolled in school district special education resource programs scattered over a five county geographical area.

During the first year, the Project piloted a centralized model of vocational service delivery. The model was centralized in that a core project staff, based at ESU #9 in Hastings, assumed responsibility for

the development and delivery of vocational services to the target population enrolled in 18 secondary resource programs. Project staff consisted of 3 job placement consultants, a program coordinator, and a program director. Services provided during the first year included identification and referral, vocational evaluation, individual vocational/educational program development, job explorations, and on-the-job training (OJT).

A matched subjects design was used to evaluate the outcome of the one year centralized model. Ten graduating students who had received centralized services were matched to 10 students who did not. Data were gathered on these 20 students regarding school involvement and characteristics, vocational training received during the one year of the centralized project, and outcome information including employment history and living arrangements for two years following graduation. Although there were significant differences between the two groups on vocational training variables, which indicated that the centralized service delivery model changed the schools' approach to vocational training, there were no significant differences between the two groups on any of the outcome measures. The major program evaluation variables are summarized in Table 1.

Refer to Table 1

Because of these results, the decision was made to move away from the centralized model to a more decentralized model of vocational service delivery. The decentralized model placed emphasis upon the secondary resource teacher in learning how to implement and deliver vocational services and activities at the local school district level that had previously been

Table 1

SUMMARY OF CENTRALIZED MODEL PROGRAM EVALUATION DATA

Variable	Centralized Model	Non-Centralized	t-ratio
SUBJECT CHARACTERISTICS:[a]			
Age	18.7[b] (.8)[c]	18.4(.8)	0.82
I.Q.	71.5(16)	68.5(17)	1.65
Current Living:			
In-Home	9	6	(Chi-square value = 34 p<.001)
Out of Home	1	4	
Source of Income:			
Family	8	8	(Chi-aquare value =17 p<.001)
Public	5	3	
Employment	3	7	
SCHOOL CHARACTERISTICS:			
School Enrollment (Hundreds)	7.8(5.0)	9.4(5.7)	-0.25
# Vocational Programs	4.3(.4)	4.7(.9)	-1.18
Administrative Support	1.4(.5)	1.4(.6)	0.00
Resource Teacher Resides in Community of Job Placement	.7[d] (.5)	.5(.5)	0.80
Resource Teacher Teaches in Community of Job Placement (# of Endorsements)	3.2(.9)	2.6(.7)	1.62
TRAINING SERVICES:			
Total Days Absent	16.2(16)	21(19)	-0.70
# Month/SPED	18.(.00)	17(2.4)	1.24
% Time/Resource Room	.42(.30)	.46(.32)	-0.83

Table 1 (continued)

Variable	Centralized Model	Non-Centralized	t-ratio
Semester Hours in Vocational Training	11.5(9)	15.6(14)	-1.50
Job Explorations[d]	.9[d] (.7)	0 (.0)	3.86**
Student Placed in Job Exploration Area	.60[d](.5)	0(.0)	3.67**
Job Training Experiences[d]	.70[d](.5)	0(.0)	4.58**
OUTCOME MEASURES:			
Proportion in Regular Employments[e]	.8[d](.4)	1.1(.7)	-1.15
Average Hours/Week	32(18)	31(15)	-0.27
Average Wage/Hour	$3.18(1.7)	$3.52(1.5)	-0.99
Weeks Employed since Graduation	29.2(23)	39(19)	-1.27

[a] Two pairs were verified as "specific learning disability"; two as "mentally retarded"; and six pairs verified "educable mentally handicapped."

[b] Mean

[c] Standard Deviation

[d] The proportion of students placed in job exploration, training, or regular employment since graduation.

[e] A student had to be employed for 90 days before being considered as "regularly employed."

the responsibility of the centralized project staff. The rationale for this approach was based on the previously summarized evaluation data, lack of staff and budgetary resources to effectively continue service delivery to a target population enrolled in widely scattered school district programs, and the need to assist each school district to utilize resources already available within its community.

The essential features of the decentralized model (that provides the data for today's presentation) are summarized in Table 2.

Refer to Table 2

One of the most critical aspects of the project was the initial employer survey. Businesses were surveyed in 16 communities within south-central Nebraska. A description of the sample and return rates is summarized below:

Types of Business Receiving Survey:		Size of Businesses Receiving Survey:	
Marketing; retail & wholesale	(78)	Small	1-50 Employees
Manufacturing	(40)	Medium	51-250 Employees
Service	(78)	Large	251+ Employees
Total Number of Survey's Mailed:	198	Total Number of Returns Received:	
Total Number of Communities Involved in Survey:	16	Marketing: 56% of all sizes Manufacturing: 45% of all sizes Service: 41% of all sizes	

Each employer was asked to rate 27 skills using a three point rating scale:

(1) Skill is unimportant for entry-level person to have.

(2) Skill is important, but it is not necessary to get an entry-level position.

Table 2

CHARACTERISTICS OF THE DECENTRALIZED MODEL

1. An extensive survey of rural community employers concerning desired skills and behaviors for entry-level employees.
2. A Student Competency Checklist incorporating a prioritized sequence of desired employee skills and behaviors.
3. A series of 14 vocational curriculum teaching modules based on skill and behavior priorities identified by local employers.
4. A resource teacher training plan, wherein the project staff worked with each teacher on a consultative basis and conducted monthly seminar/training sessions in job analysis, job development, and on-the-job support activities.
5. A Program Handbook of vocational services and activities that provided the resource teacher with specific procedures to:
   a. Facilitate a cooperative working relationship between community employers, schools and teachers.
   b. Encourage program ownership at the school district level through solicitation of school administrator and teacher participation and input in program related decision-making processes and activities.
   c. Maintain a data base related to student and school characteristics, vocational education/training services, and specified outcome measures.

(3) Skill is both important and necessary to get an entry-level position.

An analysis of the employer responses revealed that the 27 skills could be grouped into three major categories including: (a) critical skills; (b) desired skills but not necessary for all jobs; and (c) pre-vocational skills. The 15 critical skills, and their relative ratings, are listed in Table 3.

Refer to Table 3

As mentioned previously, the major purpose to today's presentation is to summarize the data from a longitudinal study involving 108 students who graduated between 1979 and 1983 from schools involved with the project. These students have been contacted at least yearly since graduation. Complete data were available for each student on the program evaluation variables listed in Table 4.

Refer to Table 4

Results

Time precludes summarizing all the results of the study. We have chosen to present today those results that we feel will be the most interesting and valuable. Descriptive statistics summarizing the major student characteristics, school variables, and community-county characteristics are presented in Table 5.

Table 3

CRITICAL ENTRY-LEVEL SKILLS

Skill	Percent of Employers Rating Skill as: (1)[a]	(2)[b]	(3)[c]
1. Demonstrates proper hygiene	15	38	46
2. Knows appropriate action to take in an emergency situation	9	43	48
3. Identifies potential safety hazards on the job	1	39	51
4. Demonstrates good listening habits	6	26	69
5. Follows written and spoken instructions	2	17	79
6. Reads signs, forms, newspapers, phone books, functional words, and abbreviations	6	26	69
7. Knows how to ask questions for directions, information, personal needs, etc.	4	24	71
8. Practices appropriate behavior in public/work settings (i.e., accepts criticism, shows personal initiative)	3	34	63
9. Recognizes skills necessary for interpersonal relationships in work settings	10	51	40
10. Knows importance of quality standards on the job	9	19	70
11. Recognizes relationship beteen time and work/rate production	10	38	52
12. Identifies problems (job related) and seeks proper assistance	3	37	59
13. Recognizes importance of punctuality & attendance	7	13	80
14. Estimates time needed to complete job tasks	22	52	26
15. Demonstrates ability to work without immediate supervision	9	37	54

[a] Skill is unimportant for an entry-level person to have.

[b] Skill is important, but it is not necessary for an entry-level position.

[c] Skill is both important and necessary to get an entry-level position.

Table 4

PROCRAM EVALUATION VARIABLES

STUDENT CHARACTERISTICS

- Age
- IQ (WAIS/WISC Full Scale)
- Verified Handicap
- Gender
- Total Days Absent
- Family Involvement

SCHOOL VARIABLES

- Number Months in Special Education (SPED)
- Percent of Time in Resource Room
- School Enrollment
- Days Absent
- Number of Vocational Programs Offered by the School
- Number of Semester Hours Enrolled in One or More Vocational Programs
- Resource Teacher: Total Years Teaching
- Resource Teacher: Number of Endorsements

COMMUNITY/COUNTY CHARACTERISTICS

- Population
- Per Capita Income
- Number of Businesses (By Category)
- Labor Force
- Unemployment Rate (By Year)

OUTCOME MEASURES

- Present Status
- Current Living Situation/Environment
- Current Primary Source of Income
- Employment Data
  1) Average hours per week
  2) Average hourly wage
  3) Weeks employed per year
  4) Number of jobs since graduation
  5) Total months employed since graduation
  6) Total earnings since graduation
  7) Job Types
  8) Reasons for losing job(s)

Refer to Table 5

The major outcome variables are summarized in Table 6. These data

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Refer to Table 6

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are averaged across verified handicaps. The data for each handicapping condition will be presented later.

The number of students within different job categories is present in Table 7. The job categories are those used by the Nebraska Department of

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Refer to Table 7

Labor and include only those jobs currently held. Table 7 also summarizes the major reasons students lost jobs.

Table 5

STUDENT CHARACTERISTICS, SCHOOL VARIABLES AND COMMUNITY-COUNTY CHARACTERISTICS
(N = 108)

Variable	Mean	Standard Error of The Mean
Student Characteristic		
Age (At Graduation)	18.3	0.09
IQ	79.97	1.95
Verified Handicap[a]		
Gender	82 males/26 females	
Total Days Absent	16.5	1.20
Family Involvement[b]	1.8	0.06
School Variables		
Number months in Special Ed.	16.5	0.30
Percent of Time in Resource Room	28	2.62
School Enrollment	747	67
Number of Vocational Programs/School	4.7	0.08
Number of Semester Hours in Voc. Program	18.3	1.48
Resource Teacher: Total Years Teaching	10.6	0.99
Resource Teacher: Number of Endorsements	2.7	0.09
Community Characteristic		
Population (Thousands)	18.8	1.11
Per Capita Income (Thousands)	10.06	0.13
Number of Businesses (Thousands)	1.73	0.05
Labor Force (Thousands)	9.59	0.59
Unemployment Rate	4.2%	0.39

[a] Number of students verified as specialized learning disability was 66; mentally retarded, 11; educable mentally handicapped, 31.

[b] Rating Scale: 1 = low; 2 = medium; 3 = high

Table 6

MAJOR OUTCOME VARIABLES

(May, 1984; N = 108)

Variable	Mean or Number	Standard Error of Mean
Present Status		
Employed	66 (61%)	
Unemployed	27 (25%)	
School (Technical/State College)	6 (6%)	
Community Based Mental Retardation Program	5 (5%)	
Prison/Mental Health Facility	4 (4%)	
Current Living Environment		
Supervised (Home, Group Home)	66 (61%)	
Semi-independent (Staffed Apt., Dorm)	18 (17)	
Independent	24 (22)	
Current Primary Source of Income		
Parents/Relatives	33 (31%)	
Public	8 (7%)	
Personal	67 (62%)	
Employment Data		
Average Hours/Week	22.02	1.96
Average Hourly Wage	2.41	0.19
Weeks Employed/Year	27.85	2.11
Number of Jobs Since Graduation	1.11	0.10
Total Months Employed Since Graduation	17.87	1.72
Total Earnings Since Graduation (Thousands)	10.91	1.20

Table 7

NUMBER OF STUDENTS PER JOB CATEGORY
AND REPORTED REASONS FOR TERMINATION FROM JOB

Job Category	Number of Job Holders
1. Farm	13 (17%)
2. Agriculture Service	4 (5%)
3. Mining	0
4. Construction	2 (3%)
5. Manufacturing: Non-durable Goods	6 (8%)
6. Manufacturing: Durable Goods	9 (12%)
7. Transportation and Public Utilities	0
8. Wholesale Trade	0
9. Retail Trade	9 (12%)
10. Finance, Insurance, Real Estate	0
11. Services	25 (33%)
12. Federal Government - Civilian	0
13. Federal Government - Military	8 (11%)
14. State and Local Government	0
Total = 76	

Termination Reasons[a]	Number
1. Too Slow	4 (13%)
2. Went out of Business	3 (10%)
3. Quit	3 (10%)
4. No Transportation	0
5. Change of Job (voluntary)	13 (43%)
6. Laid Off	5 (17%)
7. Other	1 (3%)
8. Personal	1 (3%)

Table 8 presents the average hours worked per week and hourly wages summarized for a number of individual characteristics and predictor variables. A step-wise multiple regression analysis was run against each outcome variable to determine the relative contribution of the 18 predictor variables. Table 8 lists only those predictor variables up to which the multiple R square was maximized and the overall F score was significant.

Refer to Table 8

Table 9 summarizes a similar type of analysis for three additional outcome measures, including number of jobs held (for 3 months or longer) since graduation, total months employed since graduation, and the total earnings (in thousands) since graduation. Similar step-wise multiple regression analyses were run against each of these outcome measures as described for Table 8.

Refer to Table 9

In summary, a number of conclusions can be drawn from the data presented in Tables 8 and 9. These include:

1. The major client characteristics predictive of outcomes (and positively correlated therewith) include verified handicap (SLDs do much better), gender (males do better), Full Scale IQ, family involvement, and total days absent (negatively correlated).

2. The major school variables predictive of outcomes (and positively correlated therewith) include school enrollment, semester hours in vocational programs, and total years of teaching by the resource teacher.

3. The major county/community characteristics predictive of outcome (also positively correlated) include per capita income, number of businesses, and labor force.

Table 8

AVERAGE HOURS WORKED PER WEEK AND HOURLY WAGES

CLIENT CHARACTERISTICS	OUTCOME VARIABLES	
	Hours/Week	Wages/Hour
Specific Learning Disability (N = 65)	26.9	$2.78
Educable Mentally Handicapped (N = 31)	19.0	$2.22
Mentally Retarded (N = 12)	3.5	$0.85
Females (N = 26)	11.4	$1.49
Males (N = 82)	25.4	$2.70
Family Involvement - Poor (N = 32)	15.1	$1.58
Family Involvement - Fair (N = 61)	24.7	$2.69
Family Involvement - Good (N = 15)	26.0	$3.04
PREDICTOR VARIABLES[a]		
IQ	21.17[b]*	11.96[b]*
Gender	15.66*	8.99*
Family Involvement	12.35*	11.27*
Semester Hours/Vocational Programs	10.64*	7.75*
School Enrollment	9.98*	8.13*
Handicap	9.04*	-

[a] Only those predictor variables are listed for which the multiple R squared was maximized and the overall F score was significant.

[b] F = Statistic

* $p < .01$

Table 9

EMPLOYMENT SINCE GRADUATION: NUMBER OF JOBS HELD,
TOTAL MONTHS EMPLOYED AND TOTAL EARNINGS

CLIENT CHARACTERISTIC	Outcome Variables		
	No. Jobs	Months Employed	Total Earnings (Thousands)
SLD (N = [illegible])	1.3	20.0	13.5
EMH (N = 31)	1.1	16.8	9.1
MR (N = 12)	0.3	9.4	1.6
Females (N = 26)	0.7	9.1	4.6
Males (N = 82)	1.2	20.6	12.9
Family Involvement - Poor (N = 32)	0.7	12.4	7.6
Family Involvement - Fair (N = 61)	1.3	19.0	11.5
Family Involvment - Good (N = 15)	1.4	25.1	15.7
Predictor Variables[a]			
IQ	9.92[b]*		
Family Involvement	9.46*	10.83*	15.09*
Per Capita Income[c]		10.97*	15.18*
Total Years Teaching		12.47*	15.93*
Verified Handicap		12.10*	16.52*
Total Days Absent		9.92*	14.15*
No. Businesses[c]		9.18*	13.2*
Labor Force		9.23*	13.1*
Semester Hours/Vocational Programs			20.76*

[a] Only those predictor variables are listed for which the multipleR squared was maximized and the overall F score was significant.

[b] F = Statistic

[c] Per county where job placed

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